

# MARINE REVIEW.

VOL. VIII.

CLEVELAND, O., AND CHICAGO, ILL., SEPT. 7, 1893.

No. 10.

## What Will be Done With the Christopher Columbus?

The whaleback passenger steamer Christopher Columbus, which has proven a success in carrying passengers between the central portion of the city of Chicago and the world's fair grounds, represents an investment of about \$240,000, and naturally enough there is considerable interest in what will be done with the boat when the fair is at an end. The owners of the boat are not decided as to what will be done with her. The Columbus is owned by the Columbian Whaleback Steamship Company of New York, of which Mr. Bartlett of the American Steel Barge Company is president and Samuel Mather of Cleveland vice-president. The barge company owns about one-half of the stock of the Columbian Whaleback Steamship Company, although it was not intended when she was built that they should have more than about a third of her. Some of the people who were to take stock in the boat did not take all that was allotted to them. It is probable that the boat will be run between Chicago and Mackinaw next season, although it has been suggested that she could be operated at a profit on the route between Cleveland and Port Huron, making the round trip within twenty-four hours. If this route should be selected for her, she would leave Cleveland at midnight, run to Detroit in about six hours, and then run to Port Huron and back to Detroit by four o'clock in the afternoon, so as to be in Cleveland again in time to leave on the following midnight. This would be rushing service but it is thought that the big whaleback is capable of it. If she is put on the Chicago and Mackinaw route, and the venture should prove as much of a success as some of its supporters claim for it, there is little doubt that another whaleback passenger steamer would be built for that route, as the Columbus could be duplicated at a figure much lower than that paid for her construction. She can readily be fitted with about 100 state rooms at a low cost, and she is undoubtedly the best excursion boat on the lakes.

## The Missabe Combination—Lake Freights.

Anyone unacquainted with the extent and diversity of iron mining interests in the Lake Superior region would probably be inclined to think, from despatches sent out by Duluth newspaper correspondents during the past few days, that a combination which has been made between the Merritts of Duluth, who control some of the best mines on the new Missabe range, and the Rockefellers and other eastern capitalists interested in the American Steel Barge Company, would result in the closing down of all the big mines of the older districts and the abandonment of the great bulk of the lake fleet of vessels by their present owners. It is about certain that some sort of a combination has been fixed up, which establishes closer relations between the American Steel Barge Company and the owners of the principal Missabe mines with their railway and docks at Duluth, as well as the Colby syndicate and owners of the docks and railway at Conneaut, but the absurdity of some of the statements contained in the dispatches referred to is shown in the claim that these interests represent nine-tenths of the Bessemer ore product of the country. The wealthy stockholders of the steel barge company have made another move that will give them additional power in the ore business, which forms the largest single item in lake traffic, but even the consolidation of these several interests, which were already practically within the family, is hardly worthy of the splurge that has been made over

it. The despatches also bear marks, in the prices quoted, of an effort to revive trading in Missabe stocks, which sank to nothingness with the recent depression in securities of all kinds.

The past few days have seen an advance of 10 cents a ton all around in ore freights, with rates now at 60 cents from all Lake Superior ports and 50 cents from Marquette. This has been caused partly by the large number of boats that have gone into ordinary, but it is due also to a condition that has forced all vessels to seek coal cargoes on trips up the lakes, although such cargoes are difficult to find at any price. Figures prepared last week by the ore sales agents show that the movement from Lake Erie ports to furnaces is about equal to that of a year ago, and in this there is some encouragement. The present slight advance in ore freights is, however, not only insufficient to warrant vessels in going up light, but is also liable to be only temporary, on account of the absence of any new demand for ore and the discouraging outlook in the iron market for the balance of the present season. Four steamers of the Menominee fleet that have been tied up for about a month past were started out Thursday to begin moving the Chapin Mining Company's stock pile of about 100,000 tons.

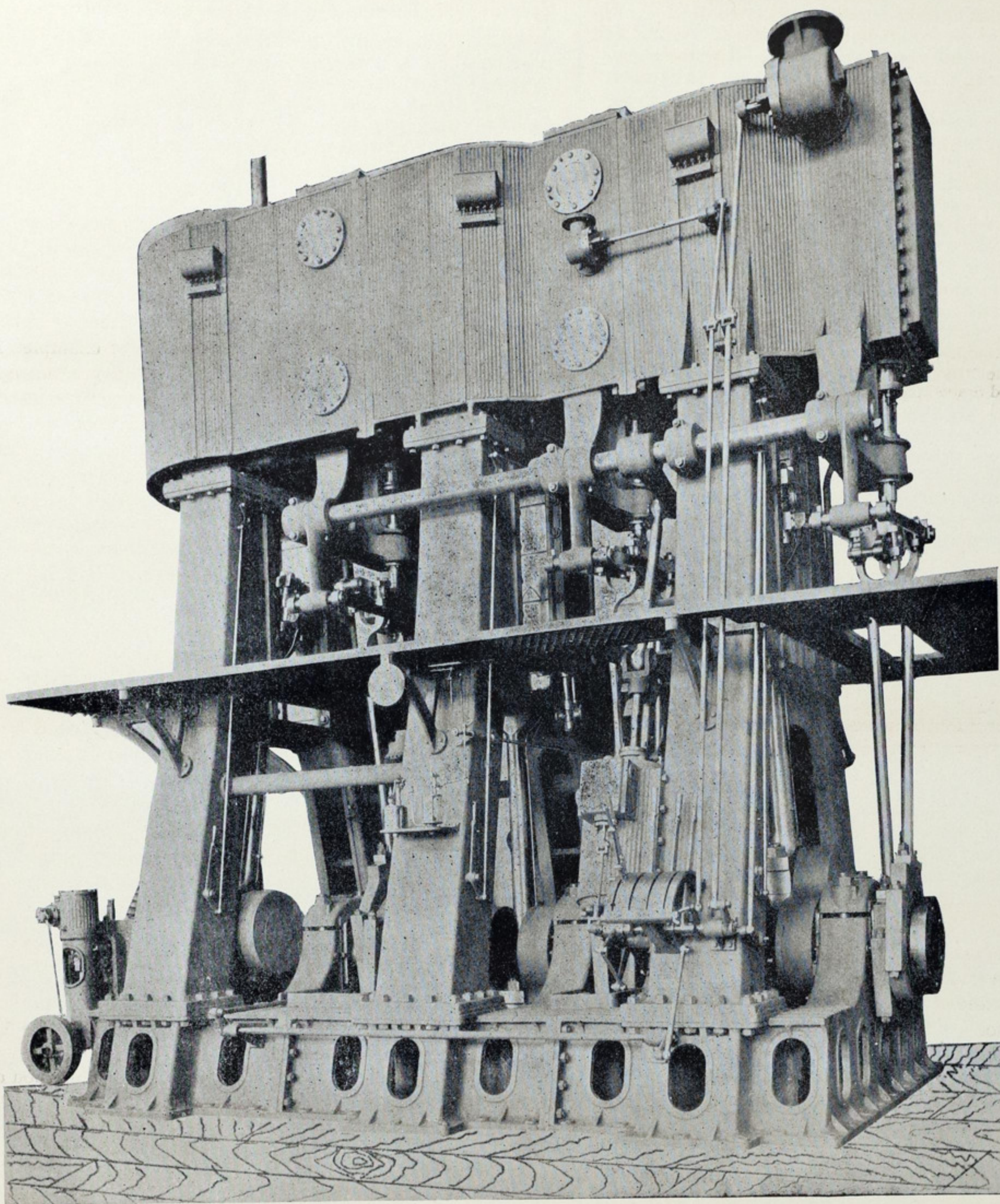
## Triple Expansion Engines.

The supplement in this issue gives a photographic illustration of the Globe triple expansion engines, the cylinders of which are 24, 38 and 61 inches by 42 inches stroke. Engines from this design furnish the propelling power in twenty-eight lake steamers. This fact is in itself interesting, as it is believed that no other make and size of engine has been duplicated to such an extent. Among the steel steamers fitted with these engines are six each of the Northern, Minnesota and Menominee companies and five of the Lehigh Valley company. They were described with an illustration from a detailed drawing of side and end views in the REVIEW of March 9, 1893. Over 1,300 nominal horse power is developed by these engines. In engines of the same build, but having cylinders 24, 39 and 63 inches by 48 inches stroke, 1,800 horse power has been attained in ordinary work, while at 170 pounds of steam and seventy-four revolutions these latter are credited with 2,163 horse power.

## Ready for the Water.

The first of the new twin-screw passenger steamers, being built by the Globe Iron Works Company of Cleveland for the Northern Steamship Company, is now about ready to be dropped into the water at any time, but will probably not be launched until the close of the present month, or possibly a little later. There will be no ceremony attached to the launch, and little will be done by the owners towards attracting attention to the new passenger line until the first boat has been given a trial in a run down Lake Erie, after which a few excursions for invited guests will probably be run out of Buffalo and Cleveland. Mr. F. P. Gordon is assisting General Manager John Gordon of the Northern Company in looking after the construction of these ships, and has spent considerable time in Cleveland of late. Crossman & Lee of Chicago, art decorators, have about concluded details pertaining to their part of the cabin work, which will surpass anything as yet attempted on a vessel in this part of the country. Two wash drawings, one of them showing the stairway to the main cabins and another illustrative of a section of dining room, have attracted favorable comment at the ship yard.





*Supplement to MARINE REVIEW, Cleveland, O.*

**THE GLOBE TRIPLE EXPANSION ENGINE.**

Cylinders, 24, 38 and 61 inches by 42 inches stroke.



## Gen. Poe Answers Mr. Wisner.

EDITOR OF THE MARINE REVIEW: I am in receipt of yours of the 2d inst. inclosing a copy of a paper by Mr. Geo. Y. Wisner, M. Am. Soc. C. E., entitled "The Deep Waterway and the Harbors of Lake Erie," cut from the Railroad Gazette, and inviting my views in regard to the points touched upon by Mr. Wisner. It may be admitted at once that the present works for the improvement of Lake Erie harbors have cost a very large sum; that several (possibly all) of them deteriorate from natural causes; that these causes will continue to produce the same results under the system heretofore pursued; and that if the surface of Lake Erie can be permanently raised 3 feet, the *deteriorating action being at the same time, permanently stopped*, it would be much better than to continue the present system. It can not be admitted, however, that a dam across the outlet of Lake Erie, sufficient to raise the level 3 feet, would neither seriously damage existing private structures having a very great value, nor cause the overflow of very considerable areas of land on its border.

I do not doubt that a dam can be built at the outlet of Lake Erie that will raise the surface of the water, but, as I pointed out in a report submitted to the chief of engineers some years ago, there are very grave objections to such a course. In the first place the United States does not have jurisdiction over all the land bordering Lake Erie, and it is very doubtful whether the Canadian government would consent to such an elevation of the lake surface as that proposed. Even were consent obtained it would be at considerable cost for flowage damages. Second, private structures, such as piers, docks, dry docks, warehouses, elevators, &c, &c, have, generally, the proper elevation above the present mean surface. If that surface were raised 3 feet the structures of the kind referred to would have to be raised accordingly. The extent to which this would be necessary can not readily be determined, but it would be quite general, and correspondingly costly. The extent of the land flowage could only be ascertained by a very accurate survey, but it can be said at once that the resulting claims for damages would be very great.

The foregoing remarks apply only to Lake Erie, and they show that the mere cost of a dam would be but a small portion of the ultimate cost of raising the level of the lake 3 feet. The result could only be produced by impeding the discharge of Lake Erie, and as the level of Lake Ontario depends upon the volume of this discharge, it is evident that the level of the latter, as well as of upper St. Lawrence river, would fall until the discharge over the proposed dam was restored to its present volume. Then the surface of Lake Ontario would begin to rise, and would continue rising until the present level was attained. The length of time required to pass through this cycle is indeterminate, but it can be assumed with reasonable assurance that the period would be so long that the people of both the United States and Canada interested in the navigation of Lake Ontario, St. Lawrence river and the St. Lawrence canals would so strongly object as to prevent the construction of a dam at the outlet of Lake Erie. The effect, as described, upon the waters below Lake Erie could only be avoided by constructing a series of dams, beginning at tidewater in St. Lawrence river, and proceeding successively to the head of Niagara river. This would involve several dams, and their cost would greatly exceed the \$600,000, suggested by Mr. Wisner as the probable cost of a dam at the outlet of Lake Erie.

If I correctly understand Mr. Wisner's argument, he holds that when the additional 3 feet of depth was attained by the construction of a dam at the outlet of Lake Erie, the harbors would be *permanently* benefitted to that extent, and the present prevailing depth of 17 feet would become 20 feet and so remain. It seems to me that this is entirely fallacious. The elevation of the lake surface would not prevent the deterioration of harbors, whether by material moved by their affluents, or by litoral action, and the removal of this material, by dredging, would be as imperative as it is now. It is impossible that the construction of such a dam as Mr. Wisner suggests would prevent the silting up of harbors, and strong reasons may be given to show that the action, at least for a time would be hastened.

Mr. Wisner has fallen into an error in regard to the depth of the channel now being dredged at the mouth of Detroit river. He assumes that the depth is to be 20 feet, referred to a mean stage. As a matter of fact it is to be 21 feet in depth, referred to the mean of all the lowest single months during each season of navigation (May to November, both inclusive) for the thirty-three years from 1859 to 1891, both included. That is to say, we found the *lowest* mean stage of water for any month of each season of navigation for the thirty-three years, and then adopted the mean of these thirty-three lowest monthly means, a very different level from that named by Mr. Wisner. He could readily have obtained the information from this office by simply asking for it, and I regret that he did not do so. He would thus have avoided the error, into which I infer he was led by knowing that the excavation on St. Mary's river and Hay lake channel, where the fluctuations are much less, was referred to a mean stage corresponding to a depth of 21.83 feet in the lock now in process of construction. But, on all the sections of the deep water channel in St. Mary's river the contractors receive half pay for an additional depth of one foot, and on the other sections full pay for an additional depth of 6 inches. This is to encourage them to make the full depth, and, as a rule, they make the additional depth because they thus earn more money, and are, in a great measure, relieved from the tedious and costly process of "cleaning up."

At the mouth of Detroit river the plane of reference is 2.62 feet below the high water of 1838 in Lake Erie. The bottom of the channel will be at least 21 feet below the plane of reference, and it will be something considerably more than an ordinary southwesterly gale (the worst condition) that will reduce the available depth to less than 20 feet, which is the depth fixed by the act of Congress authorizing the work. It must not be forgotten that when the wind is from the southwestward, the sea at the mouth of Detroit river is not heavy enough to affect the large vessels having the maximum draft of water for navigating a 20-foot channel.

It is true that the fluctuations at the west end of Lake Erie are considerable, but the cases in which they exceed  $1\frac{1}{2}$  feet are very exceptional. It would have been quite practicable, at considerable increased cost, to have provided for such exceptional cases, but it was not deemed advisable to do so. In case the completed channel in this locality should prove insufficient in the future, it can readily be deepened at no great cost. In all this discussion the fact should not be lost sight of, that only a channel having a minimum depth of 20 feet is contemplated, and that the project upon which the estimates were based did not include the deepening of any harbors.

Detroit, Mich., Sept. 4, 1893.

O. M. POE, M. Am. Soc. C. E.

## Patents of a Marine Nature.

*Specially reported from the office of the U. S. Commissioner of Patents.*

- 501,492—Dredging apparatus; Willis E. Chilson, Lorain, O.; filed Jan. 9, 1893.
- 501,870—Dredging apparatus; Caleb G. Collins, Woodsburg, assignor to Calvin Amory Stevens, New York, N. Y.; filed Sept. 10, 1892.
- 501,912—Wrecking apparatus; Michael Brabaw, Detroit Mich.; filed Dec. 12, 1892.
- 502,142—Dumping scow; Patrick Ryan, New York, N. Y.; filed Jan. 7, 1893.
- 502,061—Propeller; Russell P. Ambler, DeFuniak Springs, Fla.; filed Oct. 1, 1892.
- 502,165—Bridge; Charles H. Ball, East Windsor, Mass.; filed April 20, 1893.
- 502,224—Submarine torpedo; James W. Graydon, Washington, D. C., assignor by mesne assignments to the Graydon Dynamite Projectile Cartridge and High Explosive Company, same place; filed May 7, 1887; renewed Dec. 19, 1891.
- 502,467—Rowing apparatus; William Roessler, St. Louis, Mo.; filed Oct. 15, 1892.
- 502,542—Mast-hoop; Calvin P. H. Vary, Newark, N. Y.; filed Aug. 13, 1892.
- 502,545—Propeller wheel; Lewis O. Boostrom, Galesburg, Ill.; filed Sept. 16, 1892.
- 502,723—Rudder connection; Eliot G. Jackson, Philadelphia, Pa.; filed Feb. 9, 1893.
- 502,845—Foundation for light-houses and other heavy structures in deep water; George Blanchard, Newburg, N. Y.; filed Jan. 13, 1893.
- 502,910—Propeller; Thomas O'Brien, New York, N. Y.; filed Aug. 23, 1892.
- 502,934—Dredging machine; William B. Pless, San Francisco, Cal., assignor to the Pless Dredging and Reclamation Company of Nevada; filed Sept. 21, 1892.
- 503,026—Screw propeller; George O. Adams, Firth Nebr.; filed Oct. 25, 1892.
- 503,056—Quadruple expansion engine; James Marshall, Leeds, England; filed Aug. 31, 1892; patented in England.
- 503,079—Leak stopper for ships; John E. Gowen, Paris, France; filed Jan. 25, 1893; patented in France and England.
- 503,164—Mariner's compass; Edward S. Ritchie, Newport, Mass.; filed Jan. 16, 1893.
- 503,176—Gaff hook; Gilbert S. Stanton, Long Lake, N. Y., assignor of one-fourth to George E. Terry, Waterbury, Conn.; filed Nov. 28, 1892.
- 503,197—Fish trap; John R. Crawford, Hewitt, Ala.; filed March 15, 1893.
- 503,273—Drawbridge; Claud A. P. Turner, Ashton, R. I., and Philip A. Werner, West Newton, Mass.; filed March 7, 1891.
- 503,377—Counterbalance for bridges; Robert P. Lamont, Chicago, Ill.; filed Nov. 25, 1892.
- 503,378—Driving mechanism for bridges; Robert P. Lamont, Chicago, Ill.; filed Nov. 25, 1892.

Copies of specifications accompanying these patents can be had at 15 cents each on application to THE MARINE REVIEW, 516 Perry-Payne building, Cleveland, O.

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## The Engineer and the Modern Steamship.\*

*By an Engine Builder.*

Since we had our last talk on the engineer question, now some time ago, a good many people interested in shipping have spoken with me about it and wondered who the man could be who had such an exaggerated idea of the engineer's importance. I kept an account of their occupations and find that six were captains in active service, two were retired captains, four were first mates and one a managing owner. I refrain from commenting on the last mentioned, as I could hardly do so without disclosing his identity. There were others, though, who expressed themselves in approval and said that while it was too late to make any different arrangements for this year yet they might be counted on to inaugurate a change next spring. I notice, too, that in the late transfer of the New York and Paris the only officers they sought to retain in the shuffle were the engineers. Why did the owners brave so much adverse criticism and go to such lengths as to have Secretary Foster make a new ruling just to retain the engineers?

Because these steamers have to maintain their record this year of all years, and their record was made in the engine room. President Griscom, the highest official of the company operating these steamers, said it would have been the height of folly to change engineers at such a time. He had the good sense to see that the man on the bridge didn't have anything to do with the performance of the ship. A certain British technical journal, one of the leading authorities on all matters pertaining to the building and operating of steamships, said exultingly, in speaking of the arrival of the New York at Southampton for the first time under American colors: "These steamers now carry an American captain, though the engineers, who are after all the most important of the officers on these great racing palaces, continue to be British."

Some dirty night your ship will be found laboring and struggling in a seaway. Ten, fifteen or twenty miles to leeward, is what you least want to see—the shore. It is all she can do to keep her head up. If the engines could only be "let out" you would be all right, but it can't be done. She lowers her nose and with stern lifting seems about ready to take the final plunge. Now if a hand is not on the throttle when the wheel lifts, in one instant your engine is a wreck. Not one moment can attention be relaxed there. Even as it is, the machinery strains and struggles and you think it can't last much longer. The chief engineer goes carefully and anxiously about; his watchful eye takes in every detail of the intricate, moving mass. This is just the time you need everything to work at its best. It is just the time everything is likely to go to the devil. Owing to the straining and springing of the ship, journals that would never make trouble at any other time, now bind and heat. Such is the time when air pumps break down from the shock of racing; when bilge pumps choke and steam-tubes leak. The boilers prime and the steam goes down. The water in the gauge glasses chases itself up and down so rapidly that a quick eye is needed to detect its movements. The engineer climbs up and down engine ladders, in and out amongst the rapidly moving machinery with his life in his hands. The ship gives a lurch 'till you think she is going over. A slip of his foot and his life goes out. The worse the night the more often and carefully must he go his rounds. He can't stay in one place and hang on. A sea smashes the skylight and drowns out the lights. It is by no means an uncommon experience to be left in pitch darkness with a thrashing pile of machinery, upon the movement of which the safety of everything depends. If the engineer moves hand or foot in such a condition he may meet death, but he must act and take chances. On deck all hands are attending to their duty but what can they do? Once they have made everything snug, what then? Hang on and unite with the skipper in praying that the machinery will not give out and that those galoots of engineers are attending to their business. Yes, they are, and they haven't got time to reciprocate.

Well, your ship rides it out purely and simply because the prayer was granted. Had that journal not been closely watched and that air pump carefully nursed, or if that hand on the throttle had failed, all the powers of men could not have kept you off the beach, provided you staid afloat long enough to reach it. And when you reach port and the tale of the struggle is told, the newspapers and the public tell each other how Capt. Standup brought his ship safely through the awful crisis. And when after just such a scene as this the managing owner comes to the engine room, as in at least one instance I know of, and says, "Well, Mr. Spanner, I think we will have to try and get along with a little less help in the engine room," is it any wonder that men ask themselves if there is any use trying to keep their end up. I say to the vessel owners: Don't take every man for an engineer because he says he is one and can tell you of how many boats he has had. There are engineers and engineers but the men you want are not looking for boats. They will not be forced into sacrificing their self-respect by accepting the bones you hold out to them. The fact that your boat does her work without serious delays proves nothing. I do not believe there are a dozen modern steamers on the lakes doing the best work their triple expansion engines are capable of. It is all rank nonsense for either engineer, or owner or builder to say that there is no more work to do about a triple expansion engine than there is about the compound in another boat of the same class. The economy of the triple is not to be found in reducing the working staff. If the engineer is conscientious in his duty and willing

to see that everything is kept as it should be, he will find plenty to do on any lake steamer, not only for himself but for all the help he is likely to get, and it is when his engines and boilers are maintained in a condition to give their maximum efficiency that the triple engine shows at its best in comparison with other types. If he cannot get help enough to go over the whole ground, he will confine himself to the matters needing attention most urgently and let the rest go, and the efficiency of the whole plant is impaired.

Another great mistake made by owners is in the selection of their representative when a new ship is being built. They will have the skipper on the ground when the first blow is struck, and when she is about ready to leave they send the engineer upon the scene. Now while it is probably wise to have the skipper on the ground, there would be more wisdom in assigning the engineer to similar duty, and no reputable builder would object to his presence. I recall a case in point where a fine metal steamer was being built and the skipper was there but the engineer was not. The former gave his attention, of course, to things in which he was most interested; paid great attention to the shape of the hatch coamings, the set of the rigging, etc. Meanwhile the ballast suction had been put in, and, owing either to ignorance or carelessness on the part of the pipe fitters, they were so placed that when the pumps had got all the water that would come to them there would still have been 100 tons of water in the tanks. Bye and bye the engineer arrived and in his explorations discovered the true state of affairs. He reported to the captain as the representative of the owners, who declared it must be all right and that the ship builders knew their business. The engineer went to the owners, stated the condition of things and insisted on his position. They did what the skipper should have done in the first place—went to the superintendent of the ship yard and the matter was made right at once, but at the cost of much valuable time when the ship was just ready to sail. This same skipper raised long and loud objections to having a deck beam two inches above the boilers. The superintendent took the trouble to try to explain that it was all right. The skipper "didn't care a d— what anybody said. He knew that when those boilers were steamed they would expand more than two inches and then where would we be." It may appear that I am crowding the skippers a little, but I am annoyed at seeing men getting credit all the time for what they don't do. If the performance of a steamer was the result of orders emanating from the pilot house it would be all right, but such is not the case. Therefore let the credit or blame go hand in hand with the responsibility. Come again and I will say something about the engineers themselves.

There is another matter I want to speak of. It has been the custom for years to appoint the supervising inspectors from the ranks of captains. Now take up the rules and regulations of the steamboat inspection service and to what department is the most attention given? To the boilers and machinery and the qualifications of the engineers. It is unnecessary to enlarge upon the ridiculous custom of selecting the supervising inspector. He ought, above all things, to be an engineer of high standing and attainments, especially in these days of metal ship building. But the whole system is wrong. We need look for no thorough system of inspection so long as these offices are in the gift of the politicians. The little nation across the line has shown us an example in the matter of inspection. There the candidates are subjected to a competitive examination. The candidate who makes the best showing gets there, and he does not have to cater to any interest to secure or keep his position. If a man offers himself as a candidate here, whose support does he seek first? The vessel owning interests. And when new rules and regulations are proposed the same interests are the first to enter their protest and, of course, it goes. What a paradox. It is a good deal like submitting a law for the suppression of burglary to the burglars for their approval. And it does seem as though the poorer the material the more acceptable the inspector.

## Little Profit in Lake Ontario Business.

*Special Correspondence to the MARINE REVIEW.*

KINGSTON, Ont., Sept. 7.—Not a schooner on Lake Ontario has made money this year. The money made has all been eaten up by expenses. The coal trade was fair but no return cargoes to American ports were forthcoming and now many vessels have gone into ordinary. The bulk of the lumber sent across the lake was carried by barges. One small cargo of iron ore went from here to Fairhaven, N. Y., the first shipment of ore for three years. The schooners will not have much to do this fall. There will be very little barley to transport though it is hinted that barley will be bought and held here by New York brewers in hope of a reduction in the tariff that will permit of it being shipped over in the spring. Passenger steamers have also fared poorly. Last June the Richelieu and Ontario Navigation Company prepared for a big rush. Two boats were to be sent down the river every day to meet the demand of traffic. The first week of business caused an abandonment of this scheme. It was found that the regular boats could do all the business, hence the steamer *Columbian*, bought near Boston for \$100,000, was called off and has been running wild, in several instances carrying excursions at 35 cents a head on sixty and seventy mile trips. Expenses had to be made some way. The Thousand Island Steamboat Company has made money, not in its regular passenger trade among its island resorts, but by handling big excursion parties.

\*Continued from Vol. VII, No. 12.



### Scientific Men in Lake Ship Yards.

The announcement, a few days ago, that Mr. Arendt Angstrom, naval architect and constructing engineer of the Cleveland Ship Building Company, had resigned his position with that company and had accepted the position of general manager with the Doty Engine Works Company, Toronto, directs attention to a class of men of scientific attainments, who have within the past few years found responsible positions in nearly all of the steel ship building plants on the lakes, but about whom little is heard outside of the "draughting room." A few notes about Mr. Angstrom, secured through a friend, will tend to show the training necessary to fit these men for the work of designing all parts of a ship.

Mr. Angstrom is a native of Sweden, and his early education in mechanics was secured with his father, Professor C. A. Angstrom of the Royal Technical High School of Stockholm. Upon graduating from the Stockholm school, he spent some time at the ship yards in Sweden, and later took a course at the naval institute in Cherbourg, France, where our young naval constructors now get their finish. After visiting England and Scotland he came to the United States in 1883 and soon obtained profitable employment at the United States torpedo station, Newport, R. I. While there he was sent by the government, together with Professor White, to study the manufacture of gun-cotton in Great Britain, and after his return completed and perfected the gun cotton plant at the torpedo station. He remained there for six years, and during the latter part of this period he designed several coast steamers and also assisted in the designs of the Old Colony steamers Puritan and Plymouth. Later, the opportunity with the Cleveland Ship Building Company presented itself and his first production of importance with that company was the horizontal triple expansion engines of the paddle steamer City of Toledo, which has been engaged during the present season in the World's fair service. He also designed for the Cleveland company the monitors Choctaw and Andaste, owned by the Lake Superior Iron Company, the steel steam yacht Wadena, the Wilson line steamer Yuma and the Bradley steamer Alva.

The Toronto company with which Mr. Angstrom has now engaged as general manager recently "took over," to use a Canadian or British term, the works of the John Doty Engine Company, which failed a few months ago. The ship yard portion of the plant will require quite an expenditure in order to fit it for the construction of large ships, but it is understood to be the intention of the new owners to make such improvements, in view of contracts that can be secured in Canada.

### The Merida Leads.

For some time past considerable has been said in the newspapers about the merits, as regards speed, of the big freight steamers S. S. Curry and E. C. Pope, the former owned by Eddy Bros. of Bay City and the latter by the Hawgood & Avery Transit Company of Cleveland. In the discussion no attention was paid to the steamer Merida, which is practically a duplicate of the Curry, and is owned by D. C. Whitney and others of Detroit. All three of these steamers finally came together at the St. Mary's falls canal at the close of last week on their way down the lakes with cargoes, and the Merida was the victor in a race to Port Huron.

The boats left the Sault at daylight Saturday in this order: Maruba, Curry, Pope, Merida, Republic. The Merida passed the Pope at Lime Island, and at Detour, the real contestants, the Curry and Merida, were about a mile apart, the former leading. At the end of an hour the Merida had almost closed up the gap. At this point the Curry stopped for 15 or 20 minutes, and then worked along all right, but was apparently losing ground all the time. About half way between Thunder Bay island and Point aux Barques the Merida's feed pump broke down, knock-

ing out one of the steam-cylinder covers. This necessitated feeding with the injectors and the steam pressure consequently fell to about 145, ranging from 140 to 150, but at no time going above 150. The Merida reached the river first of the fleet, beating the Curry 10 minutes. Her time is as follows: Detour light, 9:56 a. m.; Presque Isle, 12:56 p. m.; Thunder bay, 2:45 p. m.; Point aux Barques, 7:45 p. m.; check at Fort Gratiot ranges, 12:50 a. m.; Fort Gratiot light, 1:06 a. m.

The Curry and Merida are the largest steamers on the lakes and both were built within the past year by F. W. Wheeler & Co. of West Bay City, Mich. In the case of the Merida, however, the engines were designed by Mr. H. Penton of the Frontier Iron Works of Detroit, Mich., and built at that works. The wheels of both boats are also from the Frontier works. The Merida's time on the stretch from Detour to Thunder bay, 4 hours and 49 minutes, is remarkable, as it is equal to about 15.4 miles an hour.

### Another American Line of Atlantic Steamers.

On Friday of this week, the Chesapeake and Ohio Railway Company will inaugurate at Newport News, Va., an Atlantic steamship service with its own boats. The steamer Rappahannock, the first of a fleet of six big freight steamers built in England, will probably have arrived in this country by the time the REVIEW is in the hands of its readers, and the arrival of the first boat will be fittingly celebrated. The new vessels, although built and registered in England, are practically American, as they were built by American capital and will be controlled here. A very large part of the export business of the Chesapeake and Ohio railway reaches Newport News from Lake Michigan over the Big Four railway, both roads being under practically the same management, and on this account matters connected with the formal opening of the new line of ships will be of interest here. Three of the steamers now well under way, the Rappahannock, Shenandoah and the Kanawha, are being built by Messrs. Alex. Stephens & Son, of Linthouse, Glasgow, and the remaining three, the Appomattox, Chickahominy and Greenbrier, will come from the yard of Furness, Withey & Co. of West Hartlepool, England.

### Case Involving Government Rights at the Sault Canal.

A decision in another of the cases heard in Detroit last June by Judges Taft, Lurton and Swan, United States circuit court, was given out a few days ago. The case was that of Scranton vs. Wheeler and the opinion was written by Judge Lurton. Two years ago a suit was brought in ejectment by Gilmore G. Scranton against Supt. Wheeler of the St. Mary's Falls canal. Scranton is the owner of property at Sault Ste. Marie and claimed that the construction, in 1881, of what is known as the new south pier above the canal had excluded him from access to his land. He sought damages in the sum of \$35,000. A year ago, United States District Judge Severns heard the case and decided that the plaintiff was not entitled to recover. This opinion has been upheld by the circuit court, but counsel for the plaintiff says they will appeal to the United States supreme court. The opinion written by Judge Lurton was prepared with great care and is important as regards the riparian proprietors and the power of Congress to regulate commerce between the states.

In answer to the criticism from George Y. Wisner, civil engineer of Detroit, in regard to government work on Lake Erie harbors and the draught of water to be secured through the 20-foot channel now being dredged in the connecting waters of the lakes, Gen. Poe favors the REVIEW with a very interesting communication, which appears elsewhere in this issue. It should be read by everybody interested in lake shipping.

British charts of Lake Superior cover the entire north shore. \$1.



### Iron Mining Matters.

Shipments of iron ore from Two Harbors up to and including Wednesday, August 30th, aggregated 638,531 gross tons and were divided as follows: Chandler, 313,707 tons; Minnesota, 266,012; Zenith, 4,310; Cincinnati, 9,916; Canton, 21,449; Franklin, 21,947; Hale, 1,200. Shipments of Gogebic range mines through Ashland up to and including Saturday, August 26th foot up 787,824 tons, divided among the different mines as follows: Ashland, 26,465 tons; Aurora, 119,695; Colby No. 2, 28,594; Tilden, 80,594; Germania, 4,975; Iron Belt, 7,544; Montreal, south vein, 1,347; Montreal, north vein, 25,850; Brotherton, 14,675; Comet, 5,043; Eureka, 26,055; Careys, 32,931; Newport, 73,348; Norrie, 166,922; East Norrie, 64,649; Pabst, 83,353; Jack Pot, 1,651; Davis, 11,353; Sunday Lake, 17,525.

Mr. F. W. Denton of Houghton, Mich., secretary of the Lake Superior Mining Institute, announces that, on account of the depressed condition of business in the mining region, the council of the institute has deemed it advisable to cancel the September meeting which was to have opened on the 6th inst. The next regular meeting will be held in March.

The Commonwealth Iron Company, another of the Menominee range corporations operating a big non-Bessemer property, is also carrying a large stock pile, about 100,000 tons, and had laid off recently the greater part of its working force.

### In General.

A mean speed of 23.031 knots, or 26½ statute miles, was attained recently by the Japanese war ship Yoshino.

One of the machines for trimming and handling ore in the holds of vessels, of which Mr. R. Thew of Cleveland is the patentee and the McMyler company of Cleveland the manufacturers, is being applied to furnace work in one of the ore sheds of the Carnegie Steel Company.

Work on the whaleback steamer at the yard of the Pacific Steel Barge Company, Everett, Wash., was also suspended recently on account of the money stringency. The engines were being placed aboard and the boat was nearing completion in all parts when the entire force was laid off.

The Fiseen, Mr. Mosher's new steam launch, has made a run of 7¼ miles at the rate of 31.6 miles an hour, and a boat to beat this, or even equal it, must have as much power as she has per ton of displacement, that is 13 tons displacement and 600 indicated horse power. During this run her engines made 580 revolutions per minute, the screw being 3 feet diameter by 7 feet pitch.—The Engineer.

From a source that would seem entirely reliable the REVIEW is informed that the Morgan Line, now doing a freight business between New York and New Orleans, with the steamers El Norte, El Sid, El Rio, etc., the finest fleet of new steel freight steamers on the coast, will with the close of the present month complete arrangements that will result in all of these vessels running from New Orleans to Liverpool, instead of New York.

There is one objection to experimental tanks for determining resistances of models that we have never seen alluded to, and this is the resistance the trough or tank itself opposes to the motion of the displaced water. A ship in a canal or confined to a certain narrow lane with walls on each side, can not push the water away from her, but must plough bodily through it, and just how much power it takes to do this it would be hard to discover we think.—The Engineer.

Vessel masters going to the new ore docks of the Duluth, Missabe & Northern Railway Company make favorable reports regarding despatch. Among the first vessels loaded at the new docks was the Harper, which was loaded with 2,087 gross tons in 2 hours and 10 minutes. The Emily P. Weed took on 2,364 tons in 4 hours. W. S. Brann, formerly of Gladstone, is in charge of these docks, and he says he expects, when everything is working smoothly, to load a steamer of 2,000 tons capacity in an hour.

PHOTOTYPES OF THE NEW NORTHERN STEAMERS, THE CHRISTOPHER COLUMBUS, THE S. S. CURRY AND TWELVE OTHERS, INCLUDING A PICTURE OF THE GREAT EASTERN, SENT TO ANY ADDRESS ON RECEIPT OF 50 CENTS BY THE MARINE REVIEW, NO. 516 PERRY-PAYNE BUILDING, CLEVELAND, O.

### Tips from the Man on the Dock.

I wonder why it is that it seems impossible to ever get an impartial or even correct account of a battle or of a steamboat race. Now take the accounts of the race two weeks ago between the Curry and the Pope. The first one I mean, in which the Merida was not a factor. One of the lake papers says of the Pope that "since she came out there has been a general leaning throughout the lake marine to award her the honors for speed," and that, besides, "to the Detroit Dry Dock Company belongs the honor of introducing these 350-foot steel steamers, &c." Now I think that this is in need of a little correction. It should read that since she (the Pope) came out there has been a general leaning on the part of her builders and owners towards claiming for her everything in sight whether it belonged to her or not. And besides she is not by any means a 350-foot steamer. A good many stories, and not all of them nice ones either, are told of the Pope's fast trips. Some say that it is only reasonable to suppose that if a boat carries 200 pounds steam she can travel faster than if she only carries 160. However I don't think that this was such a great race after all, and what there was of it is twisted so badly that it is practically unrecognizable. The Curry is said to have used up 15½ hours making the 225 miles, "or nearly 15 miles an hour," while as a matter of fact it is hardly 14½ miles an hour, and that while so doing she beat by fifty minutes a boat going 17 miles an hour. Now while I do not believe that there is a freight steamer on the lakes that can make, or that has made, 17 miles, yet I know that the Pope herself has done better than 15½ hours across Lake Huron, and also that the same time has been made by another steamer not racing at all. I believe that both the Curry and Pope can beat the time made in the alleged race without trouble.

But there is an unpleasantly evident tendency to the "baby" act somewhere. I see that now somebody in a Cleveland paper claims that the reason the Pope did not get there was because the other fellow had three boilers whereas the Pope had but two. Well its funny how the two boilers must have been hustled at other times; and then too the people who ride on her claim that she has plenty of boiler. I heard one man say that the Pope used to have a spring in her heel but that it ran down as soon as she was sold, and the only man who carried a key was her former engineer. I guess the Curry must have one in her's now. I met breezy Capt. Bill Hutchinson, or, as he is better known, "Hutch," the other day, and with him his running mate, or chief engineer, Mr. James Norton. They are quite full of their new Merida, and although it is well known that the line they travel in is rather steady going and not inclined to record-breaking at all, they both "winked the other eye" and said they were not talking much but were very busy "sawing wood." They intimated that when the other fellows all got through, they would take a fall out of the victor. They would only burn their coal, they said, when they got the right fellow alongside, and they would only have one race to make. Well, the combination is good and ought to win. Here's to them.

Since writing the above all three of the "big fellows" have come together, and that with one of the Curry's owners, Mr. Avery of Detroit aboard. "Hutch" and his partner seem to have fulfilled with the Merida the quiet contract which existed between them, having beaten the Curry by a fair margin from the Sault to Port Huron, while the Pope was distanced.

### Stocks of Grain at Lake Ports.

The following table, prepared from reports of the Chicago board of trade, shows the stocks of wheat and corn in store at the principal points of accumulation on the lakes on Sept. 2, 1893:

	Wheat, bu.	Corn, bu.
Chicago .....	18,455,000	1,789,000
Duluth .....	2,153,000	.....
Milwaukee .....	945,000	.....
Detroit .....	960,000	7,000
Toledo .....	1,559,000	61,000
Buffalo .....	1,352,000	353,000
Total .....	25,424,000	2,210,000

At the points named there is a net increase for the week of 93,000 bushels of wheat and 628,000 bushels of corn.

Germany is said to be preparing to spend \$10,000,000 on new war ships.



# MARINE REVIEW.

DEVOTED TO THE LAKE MARINE AND KINDRED INTERESTS.

Published every Thursday at No. 516 Perry-Payne building, Cleveland, O.  
Chicago office, (branch), No. 706 Phoenix building.

SUBSCRIPTION—\$2.00 per year in advance. Single copies 10 cents each.  
Convenient binders sent, post paid, 75 cents. Advertising rates on application.

The books of the United States treasury department contain the names of 3,657 vessels, of 1,183,582.55 gross tons register in the lake trade. The lakes have more steam vessels of 1,000 to 2,500 tons than the combined ownership of this class of vessels in all other sections of the country. The number of steam vessels of 1,000 to 2,500 tons on the lakes on June 30, 1892, was 321 and their aggregate gross tonnage 534,490.27; in all other parts of the country the number of this class of vessels was, on the same date, 217 and their gross tonnage 321,784.6. The classification of the entire lake fleet is as follows:

Class.	Number.	Gross Tonnage.
Steam vessels .....	1,631	763,063.32
Sailing vessels.....	1,226	319,617.61
Canal boats.....	731	75,580.50
Barges.....	69	25,321.12
<b>Total.....</b>	<b>3,657</b>	<b>1,183,582.55</b>

Tonnage built on the lakes during the past five years, according to the reports of the United States commissioner of navigation, is as follows:

	Number.	Net Tonnage.
1888.....	222	101,102.87
1889.....	225	107,080.30
1890.....	218	108,515.00
1891.....	204	111,856.45
1892.....	169	45,168.98
<b>Total.....</b>	<b>1,038</b>	<b>473,723.60</b>

## ST. MARY'S FALLS AND SUEZ CANAL TRAFFIC.

	St. Mary's Falls Canal.			Suez Canal.		
	1892.	1891.	1890.	1892.	1891.	1890.
No. vessel passages	12,580	10,191	10,557	3,559	4,207	3,389
Ton'ge, net regist'd	10,647,203	8,400,685	8,454,435	7,712,028	8,698,777	6,890,014
Days of navigation..	223	225	228	365	365	365

Entered at Cleveland Post Office as Second-class Mail Matter.

MR. FITHIAN of Illinois, chairman of the House committee on merchant marine and fisheries, is again preparing a free ship bill, which will receive a favorable report from his committee, and which, contrary to the wishes of almost the entire merchant marine of the country, will probably be passed by the present Congress, in accordance with the free trade policy of the party in power. The measure does not directly affect the lakes, as the Illinois free trader foresaw the absolute uselessness of trying to secure votes enough, even in the present Democratic Congress, to pass a bill admitting foreign-built vessels to our prosperous coastwise trade. It is needless to say that such a bill would be opposed by most Democrats from the lake states, as well as the states bordering on the seaboard. The author has, accordingly, prepared a measure that will permit of any citizen or citizens of the United States purchasing the whole of any vessel, no matter where the vessel has been built, and securing American registry for it, provided that the vessel so purchased and registered shall not be used or allowed to engage in the coastwise trade. Mr. Fithian's claims in support of the bill are summed up in a statement made a few days ago. Against the argument that the achievements of the merchant marine of Great Britain are due to subsidies, he holds that subsidies out side of those paid for carrying the mails, which he says are very exacting, are confined to a few ships of admiralty subvention. He charges the opposition to free ships mainly to the ship builders, whom, he claims, have little immediate concern in the amount of commerce carried, and who do not look to the future advancement of their own industry, through the development of American commerce in cheap ships bought from foreigners. The refusal of this country in the past to take this method of building up a shipping business is put down as the great cause of decline in the mercantile fleet. When England in 1855 proved herself able to then build iron ships cheaper than we could, we should have bought the iron ships in a cheap market, according to this line of argument, and

by so doing build up a ship owning fraternity, that would furnish a demand sufficient to reduce the cost of iron ship building at home. This theoretical reasoning is not, however, accepted by a large majority of the ship owners and ship builders, and on the principle that the measure in question is the entering wedge towards free ships in all branches of this country's shipping, it is expected that representatives of lake interests will oppose its passage.

THERE is significance in the fact that the best civil engineers in this country are giving more attention to questions relating to a deep waterway from the lakes to the Atlantic seaboard than any other subject of transportation now before the American people. G. W. G. Ferris, the young engineer who has become famous through the great wheel at the World's Columbian Exposition, intimates that he will shortly give the canal question active attention. The current issue of the Review of Reviews contains a lengthy interview with Mr. Ferris, in which he says he has a number of other schemes on foot, some of them of a kind that might be thought rather too daring. "For example" he adds "I shall make Chicago a seaport in a few years. I have had the matter long in mind, and I have taken out patents in the principal countries of the world. I do not think that there is anything unfeasible in the idea of using compressed air instead of water in the locks of our canals. It would revolutionize the canal business. Today, as always, the great point about canals is not their first cost, but the expense of building and maintaining storage reservoirs for water. This item alone on the Erie canal has cost more than did the canal itself originally. There is no reason why a box could not be constructed into which the largest ocean ships could be floated, the box closed, and the whole box, water, ship and all, raised by compressed air as easily as you lift an elevator. But perhaps that is all I had better say about the subject." Mr. Ferris' plan of using compressed air in connection with canal locks is not entirely new. Schemes based upon radical departures in the construction of canal locks, with a view to overcoming the need of large water supplies, have for some time past demanded the attention of engineers in other countries, notably France and Germany. If the inventor of the big Chicago wheel has, however, gone so far as to secure patents throughout the world, he may soon spring a surprise on the people of New York state, who have claimed that the question of water supply was in itself sufficient argument against the proposition favoring a radical enlargement of the Erie canal.

IN ALL of their dealings with legislative matters, the executive officers of the Lake Carriers' Association have had nothing to say about needed reforms in fog signals. Neither have they shown any disposition to bring about a uniform method of steering steamboats. The settlement of these questions on the lakes seems to rest with the masters, nearly all of whom are of the opinion that in the matter of fog signals there should at least be a change that will do away with the danger of the porting signal of one blast being confounded with the fog signal of one blast blown by steamers running without consorts. As regards the question of uniformity in the arrangement of wheel chains, there is some difference of opinion, but it would seem that in view of the advantages to be derived through the adoption of straight chains, the advocates of the cross-chain method could be induced to give up their preference. However this may be, the point now is with regard to an early settlement of these questions. Agreements can best be secured through this Shipmasters' Association, but unless that body takes up this work early this fall another year must pass without anything being accomplished. The supervising inspectors of steam vessels will meet in January, and unless the wishes of the vessel masters on the lakes on these subjects can be presented to the inspectors in proper form at that meeting, there is no hope of the necessary changes in the steamboat laws.

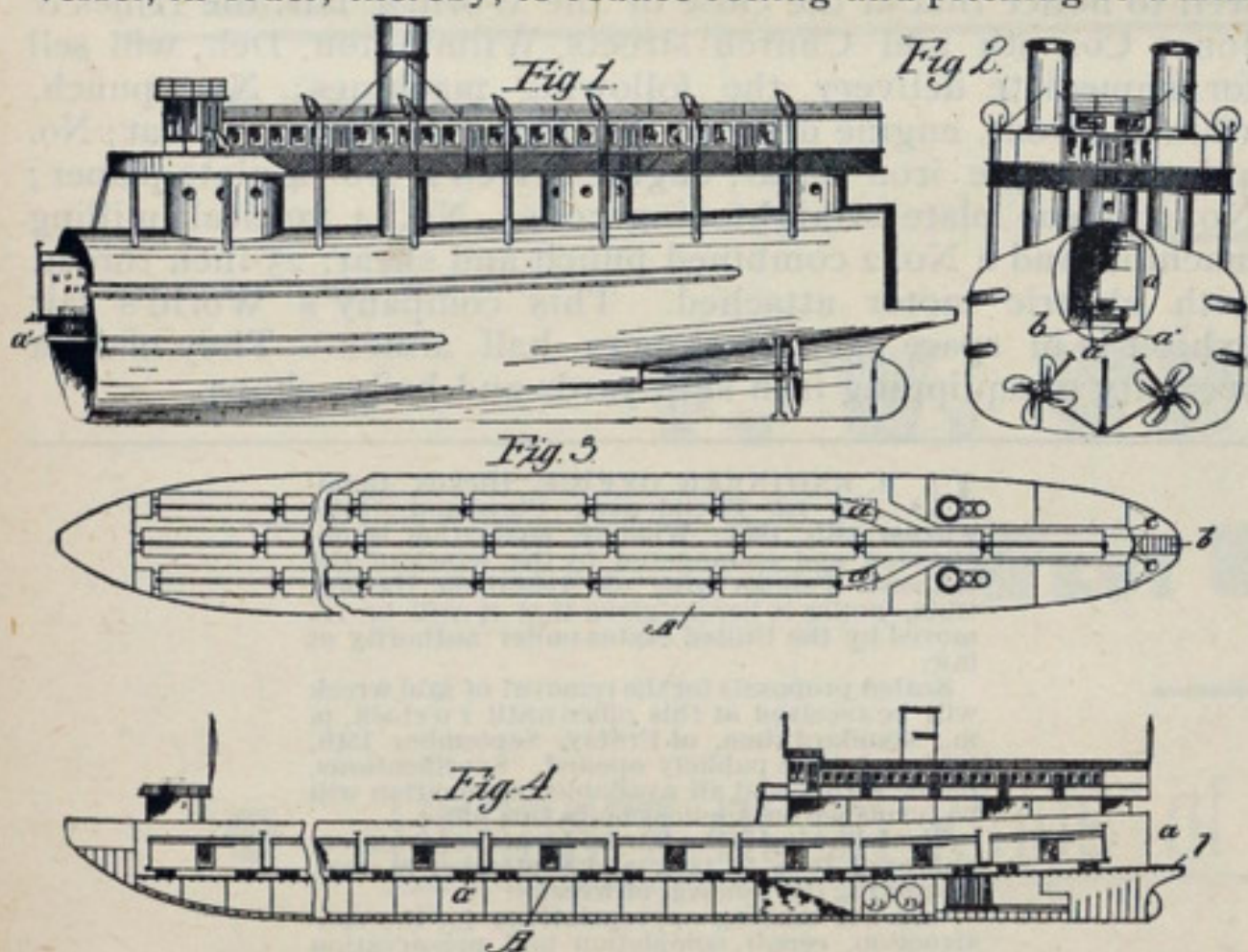


## Capt. Alex. McDougall's Patents.\*

BOAT FOR TRANSPORTING RAILROAD CARS—SPECIFICATION FORMING PART OF LETTERS PATENT NO. 498,680—DATED MAY 30, 1893—APPLICATION FILED JULY 29, 1892—SERIAL NO. 441,614—NO MODEL.

"My present invention," says Capt. McDougall, "relates to various changes and additions in those vessels which have been invented by me, whereby the said vessels are especially adapted for use in the transportation of railroad cars from one place to another. By means of the improvement, a great many railroad cars can be transported at one time, and being entirely within the hold of the boat, there can be no danger of the cars being swept overboard or being affected by the elements in any way. By reason also of the covered solid construction of my improved vessels, and the fact that the boat can be partially submerged so as to reduce pitching and rolling to a minimum, I am enabled to successfully transport railroad cars, in much heavier weather, and in higher seas, than would be possible with the vessels which are used at present for the same purpose. The vessel by its particular construction is also well adapted for passing through ice."

"The most important change in the steamboat of my improved construction is in the overhanging of the stern, at which point the cars are allowed to enter the vessel. The overhang instead of being practically on the same plane as the bow, is much lower, so that the railroad cars may pass on the same under the curved deck of the vessel through a suitable opening made for the purpose. This opening is adapted to be closed in any way, preferably by ordinary metal doors, suitably packed so as to exclude water when at sea. To enable the cars to more easily enter the interior of the boat, the curved top thereof, bulges slightly upward at its rear portion, so as to make a sufficiently large opening, without depressing the overhang of the stern to too great an extent. In the present vessel the false bottom is located about midway of the boat, instead of being near the lower portion thereof, as in my other boats. In this way several large tanks are formed beneath the said false bottom, which can be filled more or less with water, so as to partially submerge the vessel, in order, thereby, to reduce rolling and pitching to a min-



imum in heavy weather. The tracks for receiving the cars are placed on this false bottom, and are arranged in any desired manner. The forecastle of the vessel is reached in the ordinary way, through a turret, and similar turrets are located near the stern for carrying a suitable cabin. It is preferable to make use of two screws, operated by twin engines, placed one on each side of the entrance tracks, but other arrangements can be used as a substitute. In loading the vessel with cars, it is backed up into a slip in the usual manner, and the cars are run through the overhang of the stern into the hold, being distributed therein as desired. The opening at the stern is now securely closed, and the vessel is prepared to proceed. In case stormy weather or rough seas are encountered, the water tanks are filled more or less, so as to partially submerge the boat to any desired extent, whereby the pitching and rolling of the vessel will be reduced in a great measure. Should heavy field ice be met the vessel may steam backward through the same so that the propellers will crush and break up the ice.

\*Under this heading we will publish specifications accompanying letters patent granted to Alexander McDougall, of West Superior, Wis., since his first application for a patent on the whaleback type of vessel, May 1, 1880.

"Fig. 1 is an elevation of the rear portion of my improved vessel; Fig. 2, an end elevation of the same; Fig. 3, a plan view of the interior of the vessel, and Fig. 4, a longitudinal sectional view. In the vessel illustrated the overhang of the stern is on a plane considerably lower than the bow, and the sides and top of the boat are abruptly ended some distance in advance thereof, as shown in the drawings. In this way a flat entrance *a* is formed near the stern of the boat, through which the cars pass in entering the hull, and at the stern portion is a platform *b* on which the cars run before passing through the said entrance. The entrance to the hold is to be closed when desired, preferably by doors *c c*, which are to be suitably packed. These doors when closed, incline outward, (see Fig. 3) so as to better withstand any waves which might strike against the same. To better accommodate the cars, the top or deck of the boat bulges slightly upward at its rear portion, as shown in Figs. 2 and 4.

"A is a false bottom, which extends to the extreme stern end of the boat, and which is firmly supported in any way by suitable frames. The space beneath the false bottom *A* may be filled wholly or partially with water, when desired, to partially submerge the boat, for the purpose before mentioned. Ordinary railroad tracks *a' a'* are placed on this false bottom, or on suitable stringers secured thereto, and are to be arranged in any desired manner. In Fig. 3 a central track is shown reaching to the extreme stern of the boat, with two side tracks, switching into the central track. This arrangement possesses many advantages, but it is by no means necessary, since the side tracks can be dispensed with, or instead of introducing the cars into the hold directly over the stern, they may be run into one side thereof. In Fig. 3 two engines are illustrated, one on each side of the central track, but one, or even three engines could be used as a substitute therefor.

"In loading the boat it is backed into a suitable slip, so that the tracks at the stern will coincide with the tracks on the dock. The tracks on the stern can be brought down or up to a level with the tracks on the dock by pumping water into or out of the water tanks. In case heavy weather is encountered and should the boat begin to labor, as I have before mentioned, the water tanks can be filled more or less so as to submerge the boat to a greater or less extent. I have found out that when the vessel is submerged to a greater or less extent, the pitching and rolling are correspondingly reduced, and this feature makes the boat especially adapted for the purpose mentioned herein, since the vessel is enabled to carry railroad cars in all sorts of weather, which is strictly necessary. It will be understood that one of my improved barges may be used for the transportation of cars, and that the general broad idea which I have described herein, of introducing the cars into the stern of the boat, may be applied to other varieties of vessels.

"What I claim as new and desire to secure by letters patent, is as follows: First—An improved vessel for transporting railroad cars, provided with an open stern, having tracks therefrom, extending into the hold, and having water tanks adapted to receive water for partially submerging the vessel, to a greater or less extent, substantially as set forth. Second—An improved vessel for transporting railroad cars, consisting of a hull, provided with straight parallel sides, a curved top, a rounded bottom, and a skeged stern, part of said stern overhanging the main portion of the hull; tracks extending from said stern into the hold, and water tanks for partially submerging the vessel to a greater or less extent, substantially as set forth. Third—An improved vessel for transporting railroad cars, consisting of a hull having straight parallel sides, a curved top, a rounded bottom, and a skeged stern, a part of said stern overhanging the main portion of the hull; a false bottom for said vessel forming a water compartment beneath it, adapted to be partially or wholly filled, whereby the vessel may be partially submerged to a greater or less extent; tracks extending from said stern on said false bottom, and inclined doors *c c* above said stern, for closing the entrance to said hull, substantially as set forth."

An extension to Marquette breakwater, involving an expenditure of \$75,000 and the use of about 1,000,000 feet of timber, will be completed in a few weeks although it was not begun until December last and was, of course, suspended largely during the winter.

FIFTEEN PHOTOTYPES OF THE LATEST LAKE STEAMERS AND A PICTURE OF THE GREAT EASTERN, NEATLY BOUND, FOR 50 CENTS. WRITE THE MARINE REVIEW, NO. 516 PERRY-PAYNE BUILDING, CLEVELAND, O.



### Around the Lakes.

The steel steamer George J. Gould, built by the Union Dry Dock Company for the Lake Erie Transportation Company, went into commission with the close of last week.

Mr. Charles H. Keep, secretary of the Lake Carriers' Association, has the sympathy of vessel owners in the sudden death of his father, announced from Lockport, N. Y., a few days ago.

Mr. Sinclair Stewart, representing the Standard Register of Shipping, New York, attended at West Bay City last week the launch of the steamer Centurion, which was built under his inspection, and also visited Cleveland.

If the matter of expense has prevented any resident from visiting Niagara Falls the Cleveland & Buffalo line seems bound to overcome the objection for them. For Saturday night, Sept. 8, they announce the low rate of \$2, round trip, allowing all day Sunday at the falls.

Frank E. Kirby of the Detroit Dry Dock Company is preparing plans for a new boat for the Detroit, Belle Isle and Windsor Ferry Company. The new boat will come out next spring. She will be 18 feet longer than the Promise and much faster and finer in every way than that boat.

At Marine City, Alex. Anderson is building a large lumber barge for N. & B. Mills, Curtis & Brainard of Toledo are building a steam barge, and the Sicken Steambarge Company are also building a large steamer for the lumber trade. From fifty to sixty men are employed on each boat.

Announcement is made from Milwaukee of the death of William H. Hearing, who had been engaged in government work on the lakes for forty-two years. Mr. Hearing was connected with lake surveys from 1851 to 1864 and later settled in Milwaukee, where he has since been connected with the engineer office at that port.

At the annual meeting of the Cleveland Ship Building Company, Wednesday, the following directors were re-elected: R. R. Rhodes, J. H. Wade, M. A. Bradley, Valentine Fries, H. D. Coffinberry, Robert Wallace and J. C. Wallace. The directors elected officers as follows: President, Robert Wallace; vice-president and general manager, J. C. Wallace; secretary, W. Fitch.

At Port Huron, Saturday, the tug C. D. Thompson was launched in the yard of the Jenks Ship Building Company. The boat is owned by Messrs. Thompson, Lynn & Boynton, and is 92 feet over all, 19 feet 4 inches beam and 11 feet hold. The engine is 22x46 inches and the boiler 8½x14 feet, allowed 140 pounds pressure. Appliances on this boat will be entirely new and she will be ready for service in a couple of weeks. She will be stationed at Port Huron and will have a wrecking outfit.

William Smith of Ottawa, Canadian deputy minister of marine, has advertised for tenders for removal of the schooner David Vance, sunk in Pelee passage, Lake Erie. Bidders must explain the method by which they propose to remove the obstruction. Wrecking companies of the United States can now engage in work of this kind in Canada. As the underwriters have had wreckers at work on the Vance for some time past, there may be a collision of interests unless an agreement is reached before Sept. 10, the date fixed by the Canadian official for receiving tenders on the work.

Erie canal boat owners are certainly getting more business than they expected this season, even in view of the maintenance of freight rates by the railways east of Buffalo. From the opening of navigation to Sept. 1 the number of canal boats cleared from Buffalo with cargoes for tidewater and intermediate points is 4,292, or 1,460 in excess of the number cleared during the same time last year. The total amount of grain shipped in these boats is 11,107,547 bushels greater this year than in 1892—26,798,762 bushels against 15,691,215. The shipments of lumber are about the same this year as in 1892.

In all classes of freight, excepting iron ore and soft coal, the volume of business on the lakes this season continues heavier than in any previous season. This is proven by figures covering receipts of grain and flour at Buffalo, and it is all the more remarkable when the very large shipments of grain through the St. Lawrence route are considered. Receipts of grain of all kinds at Buffalo to Sept. 1 aggregated 76,446,780 bushels, as against 73,258,534 bushels on the same date in 1892. Including flour as wheat, the total grain receipts of the port to Sept. 1 is 101,826,240 bushels, while the total for the first five months of navigation in 1892 reached 98,145,214 bushels. Lumber receipts

for August were 42,589,000 feet, an increase of 2,775,000 over the same month last year.

Although the latest supplement to the Inland Lloyds Register contains ratings for seven new lake vessels that went into commission during August, the additions to the fleet for the remainder of the season will be very small. Of the new vessels four are steamers, two schooners and one a tug, and their valuations are: Steamers—Thomas Cranage, \$145,000, owned by Cranage and others, Bay City; W. P. Ketcham, \$90,000, Ketcham Steamship Company, Chicago; H. E. Runnells, \$65,000, Jenks Steamship Company, Port Huron; yacht Nettie Baker of Buffalo, value not given. Schooners—George B. Owen, \$38,000, consort of Ketcham; Yukon, 1,523 tons, \$75,000, Forbes & Wilson, Port Huron. The tug is the Charles Thompson, \$13,000, owned by Messrs. Thompson and Lynn, Port Huron.

### Trade Notes.

The steel sailing ship Ancona, building at Greenock, Scotland, has a Providence messenger chain capstan windlass made by the American Ship Windlass Company, of Providence, R. I., and one No. D and two No. E crank capstans from the same company.

Last week the American Shipmasters' Association, publishers of the Record of American and Foreign Shipping, classed the screw steamer El Cid, barks Edwin Reed, James L. Harway and Julia and three-masted schooner Etta M. Barton, all American, and also the British schooner Coronet.

The Roberts Boiler Company received an order last week from T. S. Marvel & Co. of Newburg, N. Y., for two boilers with 42 square feet of grate, which are intended for a twin screw steel steamer now being built at their works. The Roberts company reports that they have had a larger business this year than in any previous year since their organization, and that, notwithstanding the general business depression, they have had a better July and August business than in any previous year. The last order was for their 550th boiler.

Ship or engine building companies in need of tools will do well to notice that at the close of the World's fair, the Hilles & Jones Co., 9th and Church streets, Wilmington, Del., will sell for immediate delivery the following machines: No 7 punch, 18-inch throat, engine driven; No. 6 punch, 60-inch throat; No. 4 double angle iron shear, engine driven; No. 4 plate planer; No. 2 patent plate straightening rolls; No. 4 vertical milling machine, and a No. 2 combined punch and shear, 25-inch throat, with electric motor attached. This company's World's fair exhibit is in space 53 J, machinery hall annex. They make a specialty of equipping iron ship yards and boiler shops.

**U. S. ENGINEER OFFICE,** Hickox Building, 185 Euclid ave., Cleveland, Ohio. August 28th, 1893. Whereas navigation is obstructed and endangered by the wreck of the schooner Pelican lying off Ashtabula Harbor, Ohio, notice is hereby given that it will be removed by the United States under authority of law.

Sealed proposals for the removal of said wreck will be received at this office until 2 o'clock, p. m., standard time, of Friday, September 15th, 1893, and then publicly opened. Specifications, blank forms, and all available information will be furnished on application to this office.

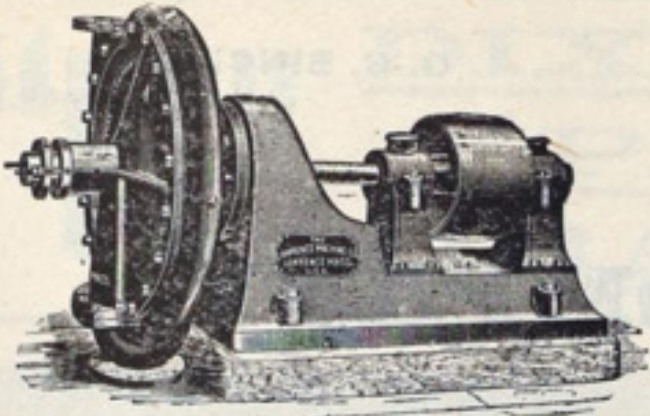
The following is the law under acts of Congress approved June 14, 1880, and September 19, 1890, respecting the removal of wrecks:

"An act making appropriations for the construction, repair, completion and preservation of certain works on rivers and harbors, and for other purposes."

Sec. 4. \* \* \* Such sunken vessel or craft and cargo and all the property therein when so removed shall, after reasonable notice of the time and place of sale, be sold to the highest bidder or bidders, for cash, and the proceeds of such sales shall be deposited in the Treasury of the United States to the credit of a fund for the removal of such obstructions to navigation, under the direction of the Secretary of War, and to be paid out for that purpose on his requisition therefor. The provisions of this Act shall apply to all such wrecks whether removed under this Act or under any other Act of Congress. Such sum of money as may be necessary to execute this section of this Act is hereby appropriated out of any money in the Treasury of the United States not otherwise appropriated, to be paid out on the requisition of the Secretary of War." Approved June 14, 1880.

Sec. 8. That all wrecks of vessels and other obstructions to the navigation of any port, roadstead, harbor, or navigable river, permitted by the owner thereof or by the parties by whom they were caused to remain to the injury of commerce and navigation for a longer period than two months, shall be subject to be broken up and removed by the Secretary of War, without liability for any damage to the owners of the same." Approved September 19, 1890. JARED A. SMITH, Lieut. Col., Corps of Engineers, U. S. Army.





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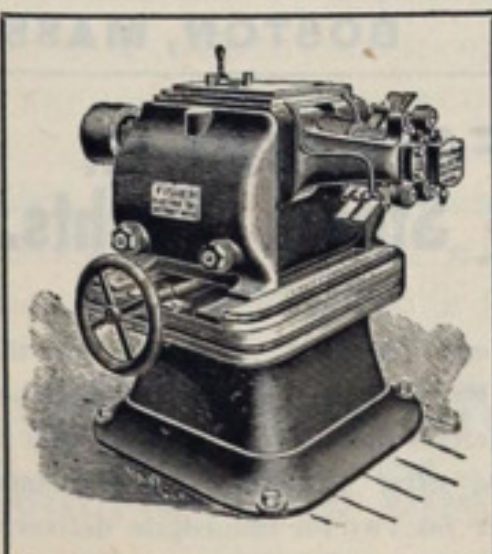
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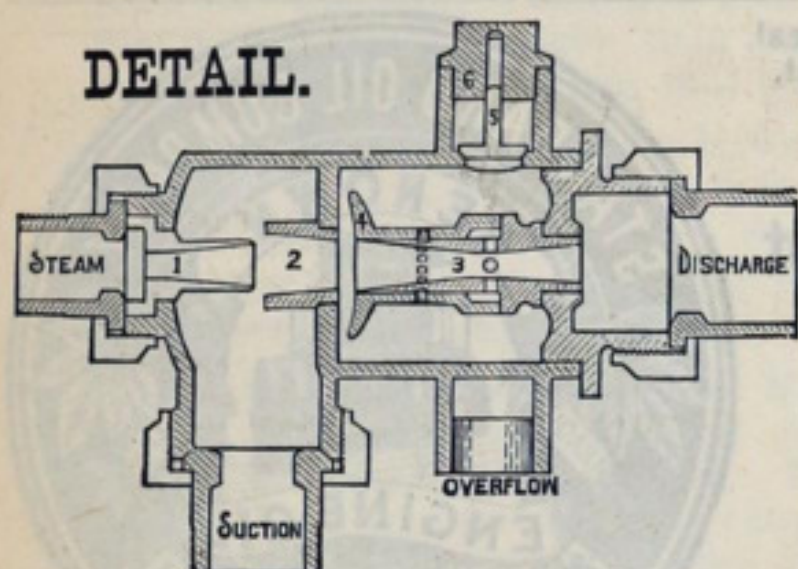
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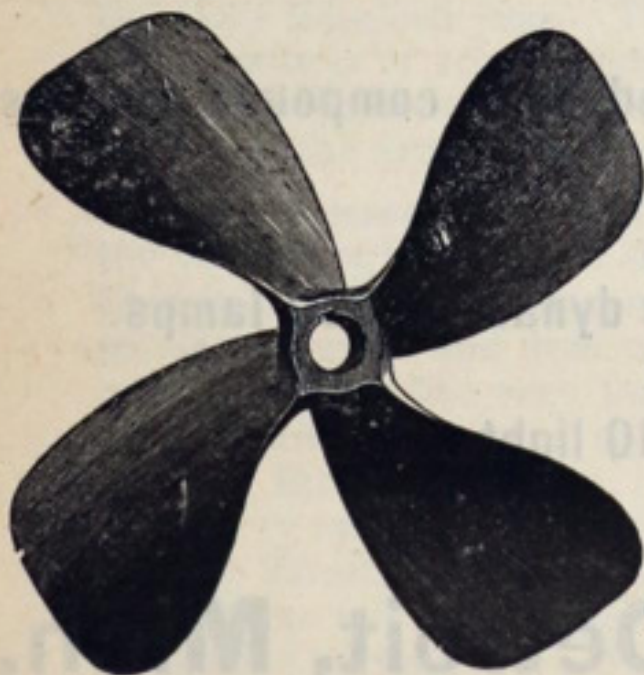
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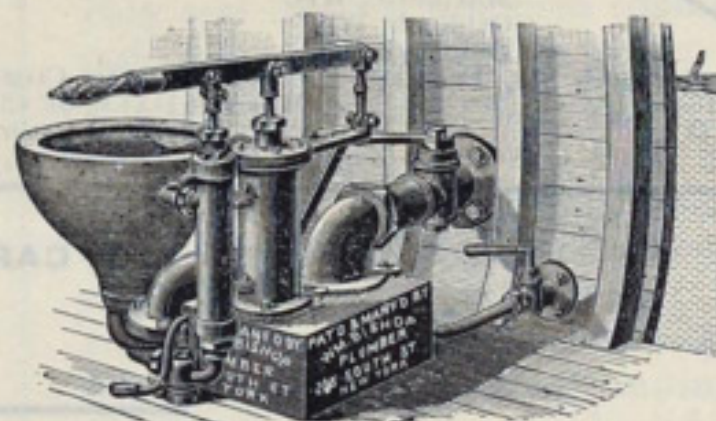
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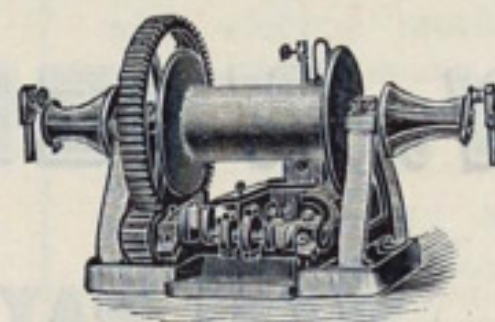
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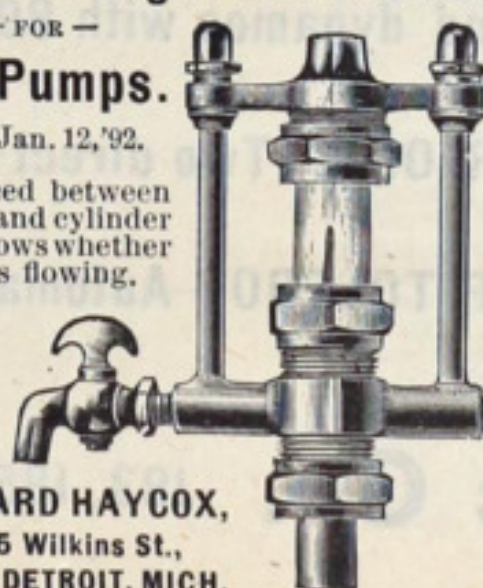
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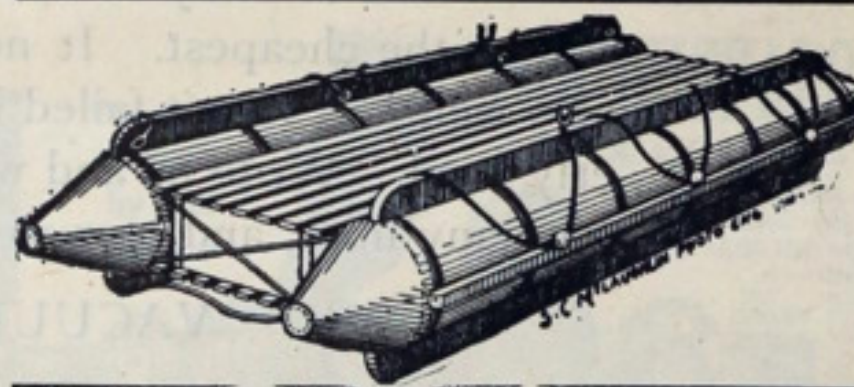
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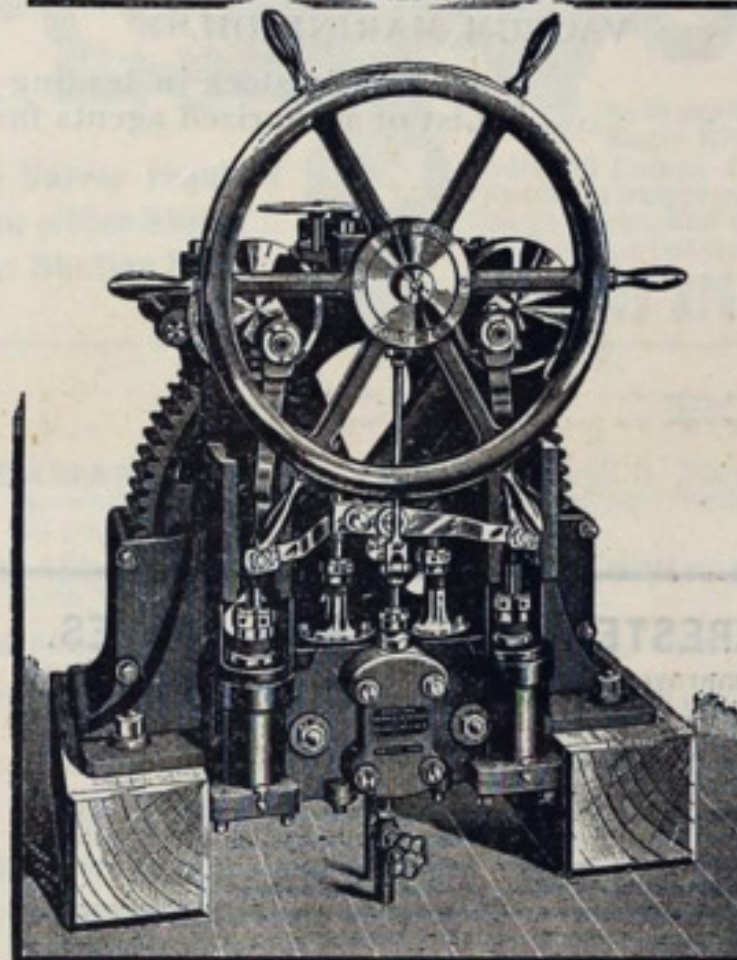
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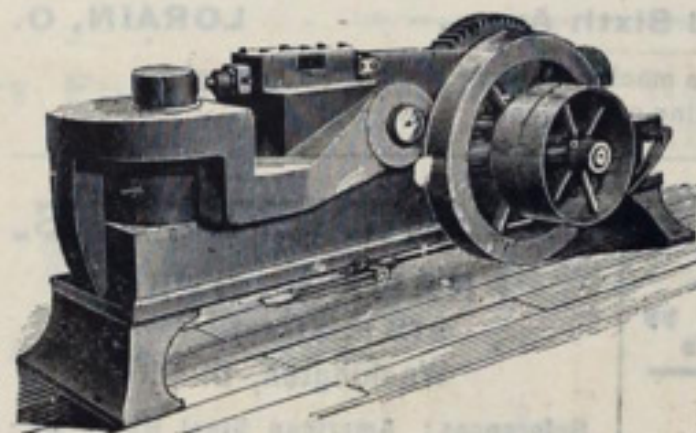
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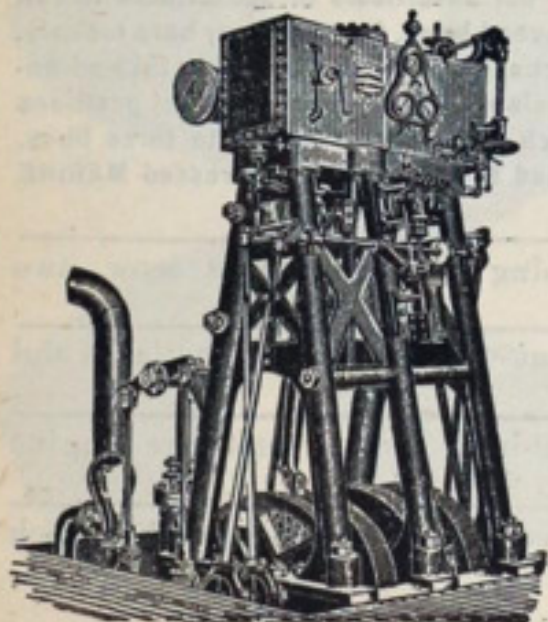
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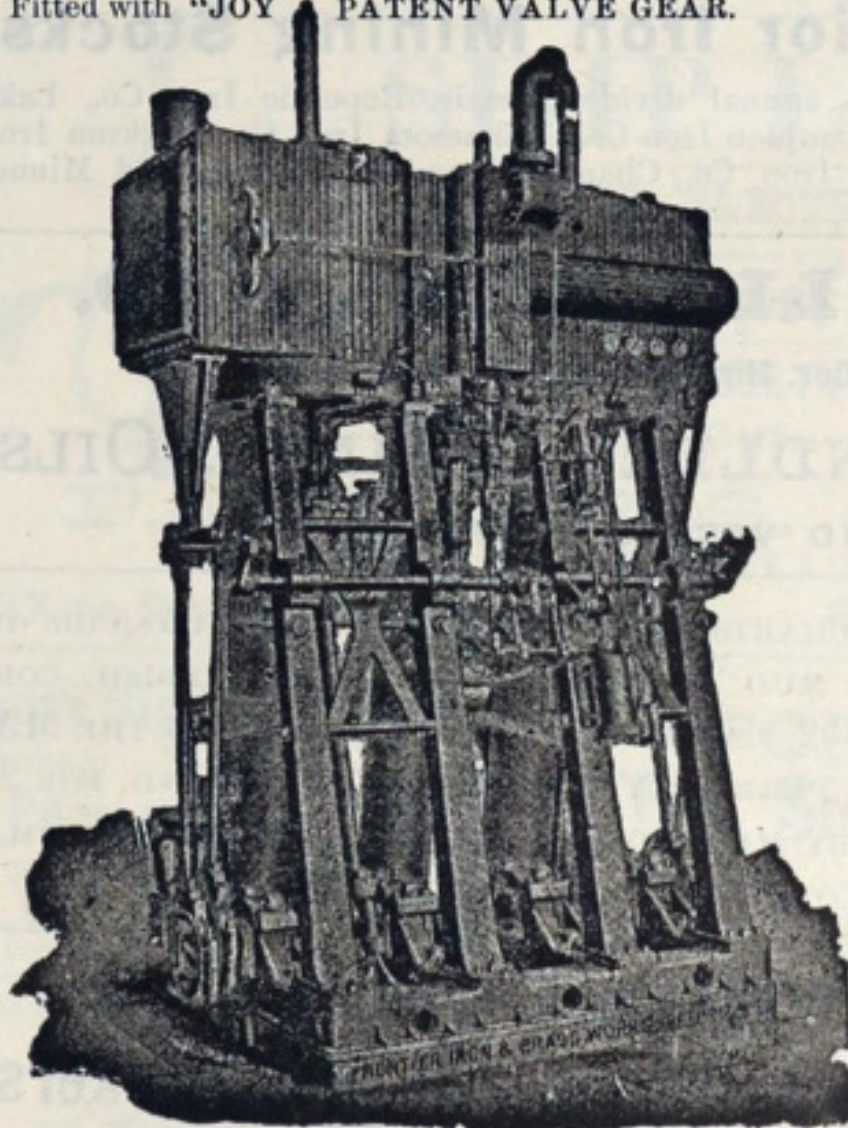
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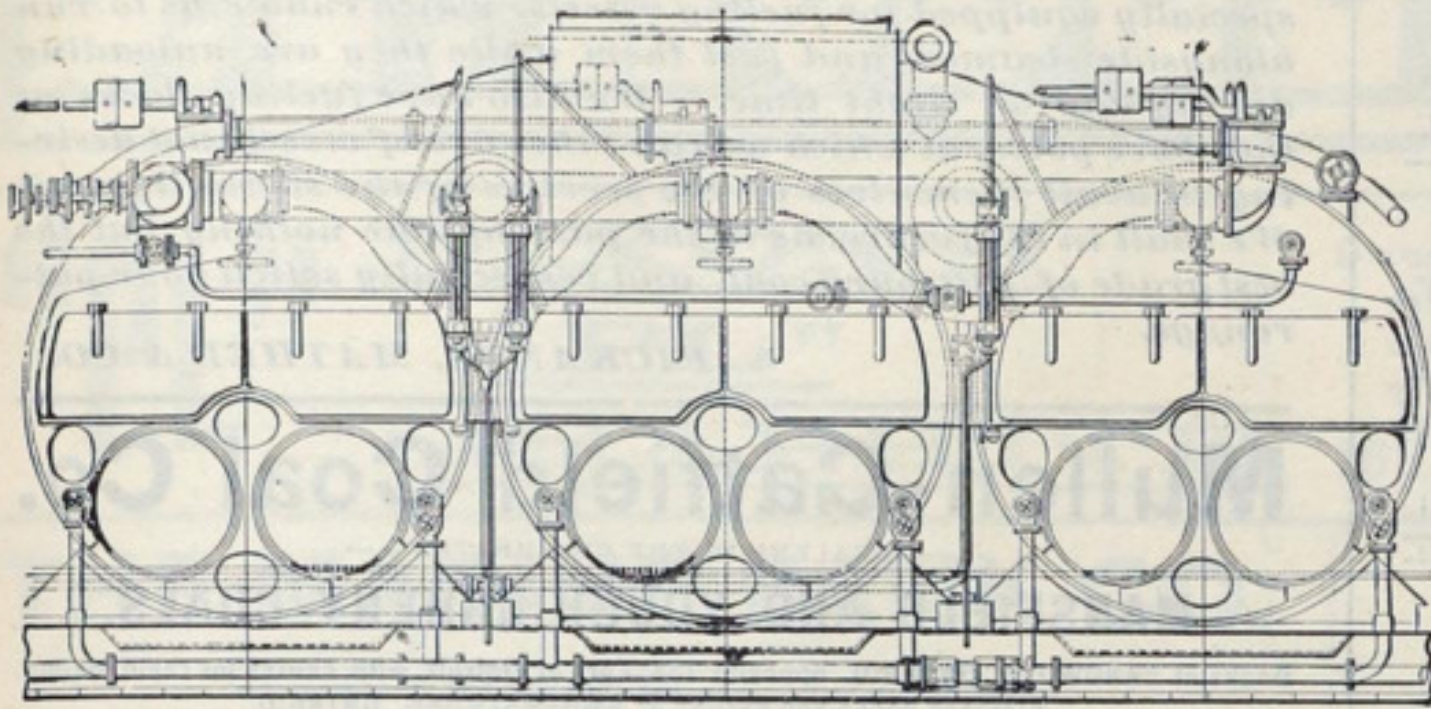
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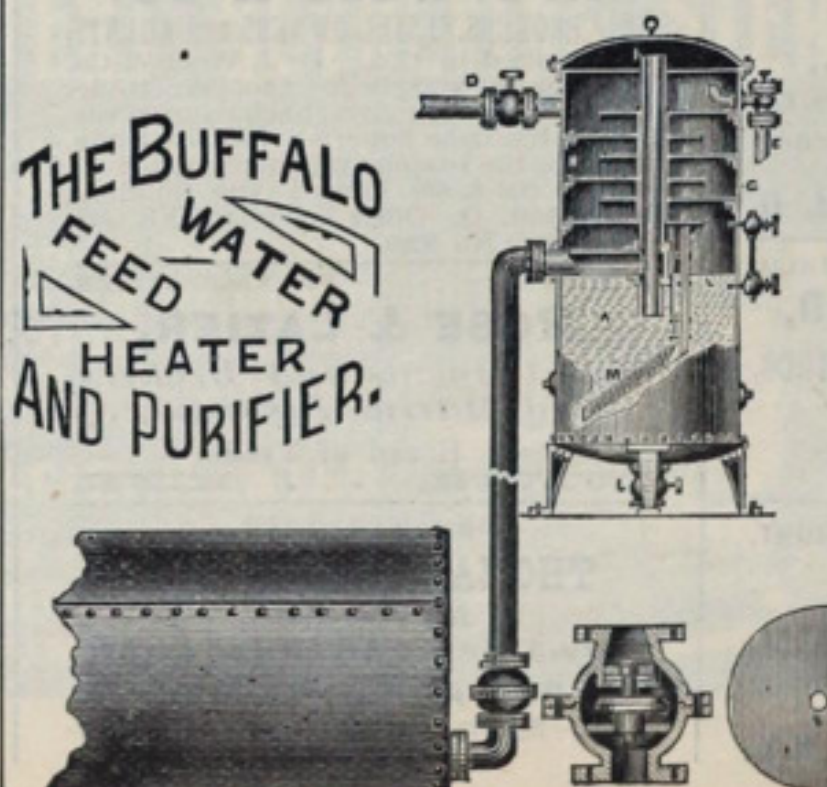
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- B.—Boiler.
- C.—Feed pipe to boiler.
- D.—Steam pipe.
- E.—Water supply pipe.
- F.—Check valve.
- G.—Spray disks.
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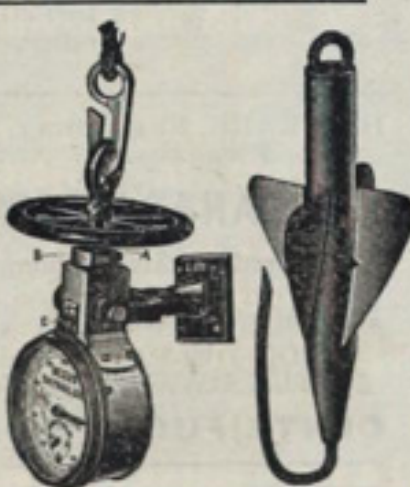
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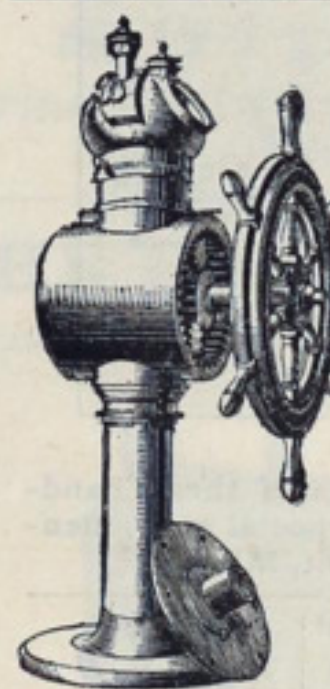
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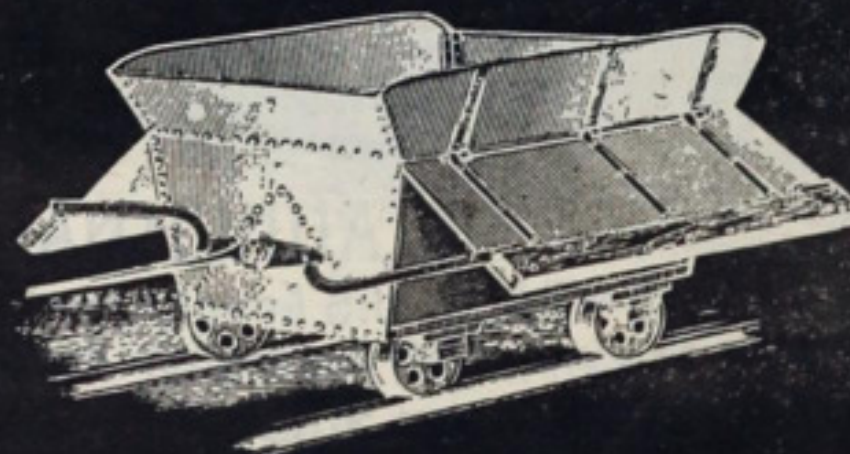
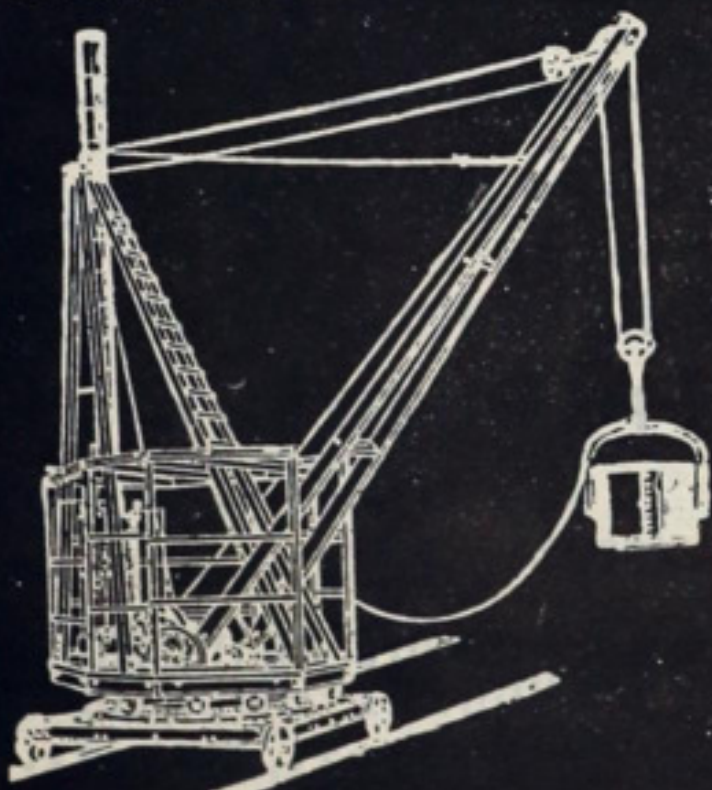
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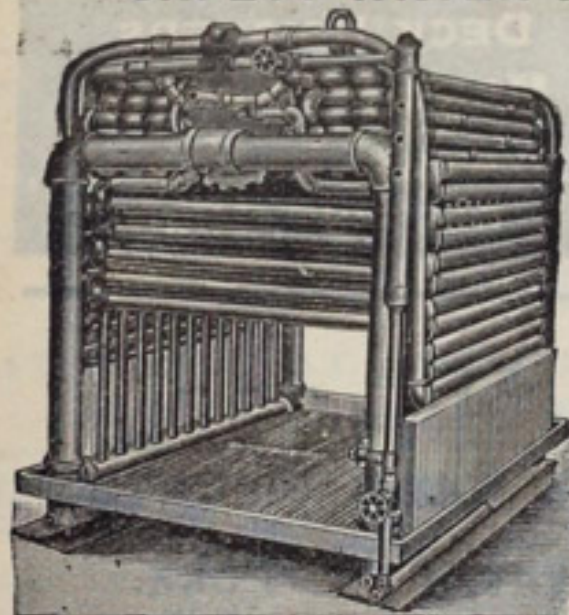
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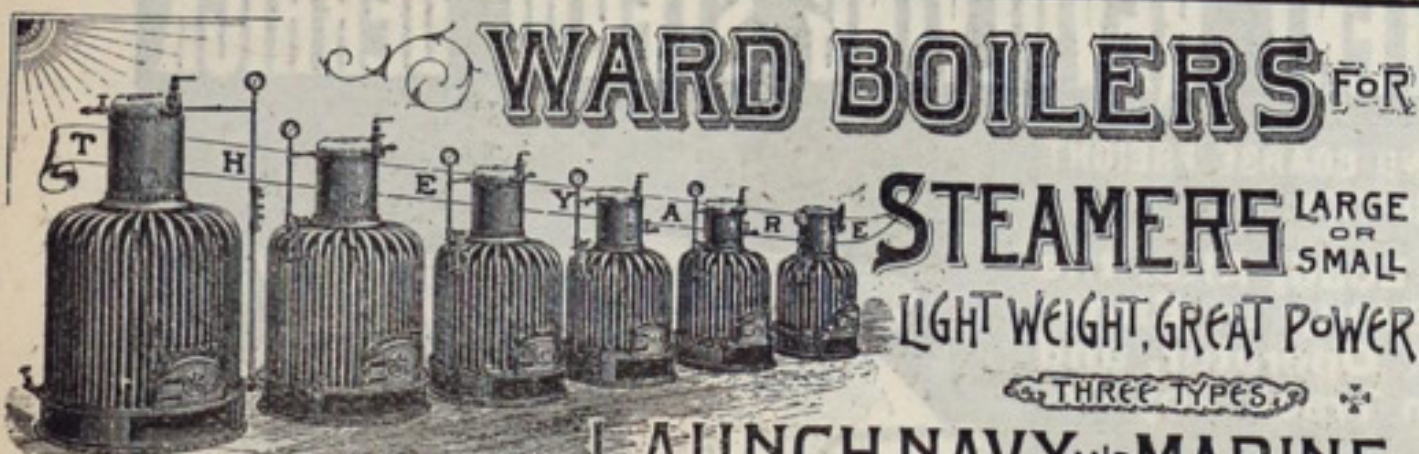
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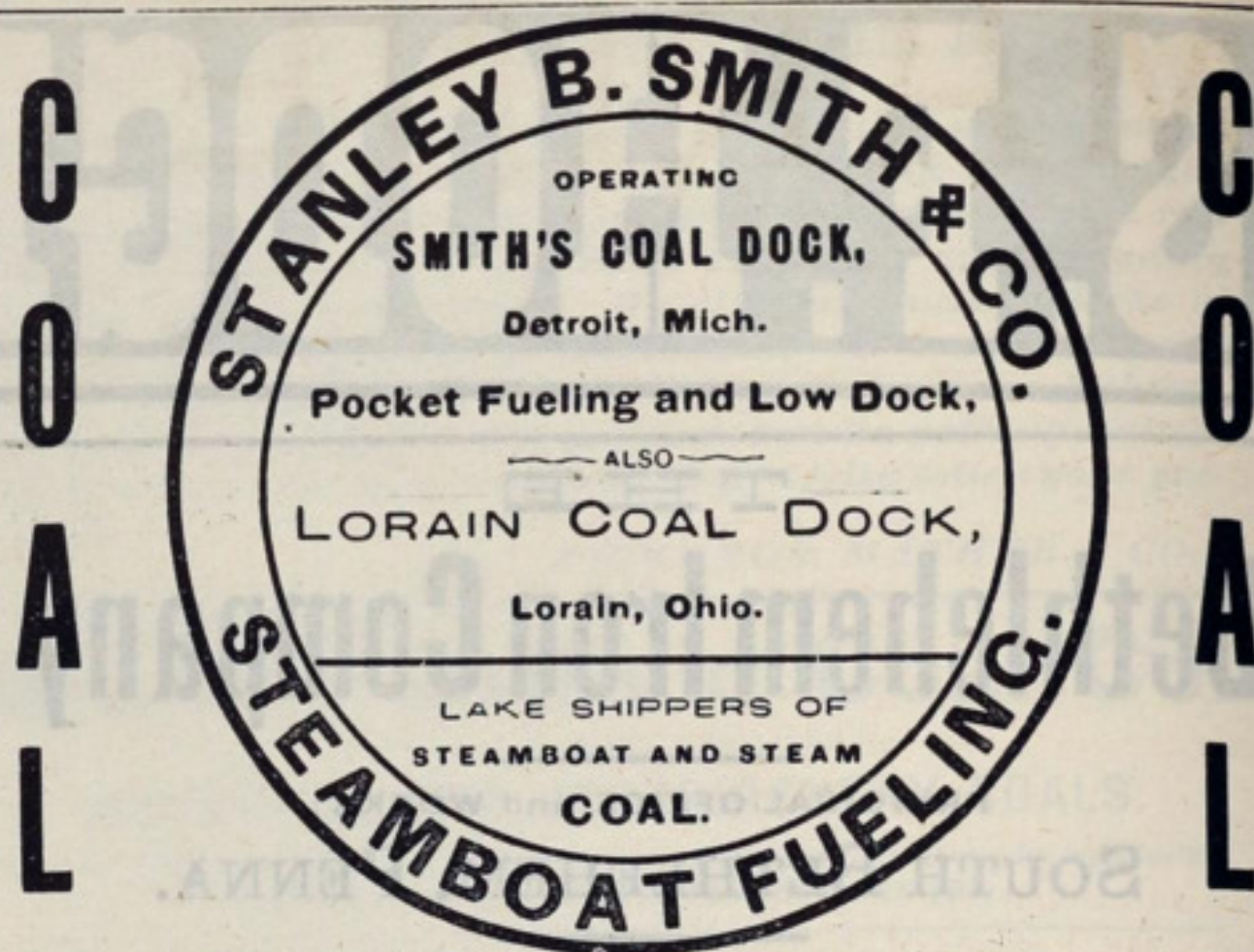
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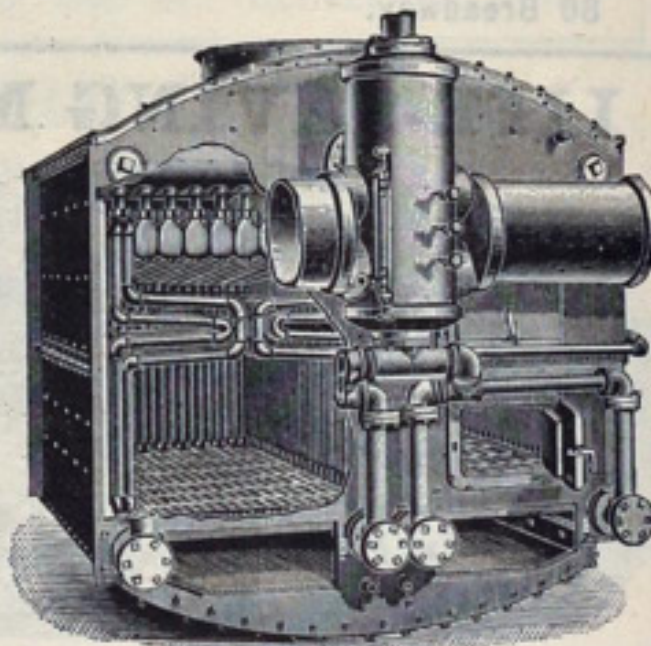
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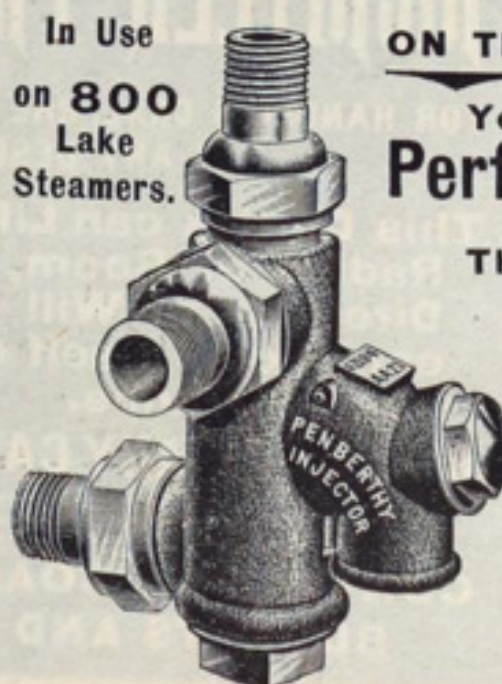
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